

# First record of *Dasysyrphus tricinctus* (Fallén, 1817) (Diptera: Syrphidae) from Iran

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**ABSTRACT:** The genus *Dasysyrphus* Enderlein, 1938 (Diptera: Syrphidae) was studied in Northern Iran. Two species, *D. albostriatus* (Fallén, 1817) and *D. tricinctus* (Fallén, 1817) were identified. *D. tricinctus* is a new record for the fauna of Iran. Diagnostic characters and geographical distribution of *D. tricinctus* are briefly discussed. Supplementary photographs of the species are provided.

The family Syrphidae (Diptera: Cyclorrhapha), commonly called hover flies or flower flies, comprise about 6000 described species worldwide (Thompson and Rotheray 1998). Up to date, about 40 species of the genus *Dasysyrphus* Enderlein, 1938 have been described (Huo *et al.* 2005). In the Palaearctic region, 19 species are listed by Peck (1988), but the taxonomy of several taxa are not well elucidated (Reemer 2002). Three species of this genus, *D. albostriatus* (Fallén, 1817), *D. pinastri* (Meigen 1822) and *D. tricinctus* (Fallén 1817), have been recorded for the Turkish fauna (Saribiyik and Hasbenli 1997) and 12 species have been reported from China (Huo *et al.* 2005). Thus far, two species of the genus *Dasysyrphus* have been reported from Iran: *D. albostriatus* (Fallén 1817) and *D. eggeri* (Schiner 1862) (Gharali and Gilasian 2002; Dusti 2006). Larvae of *Dasysyrphus* species feed on aphids (Rotheray 1993). The objective of this study was to determine the occurrence of *Dasysyrphus* species in the Northern region of Iran.

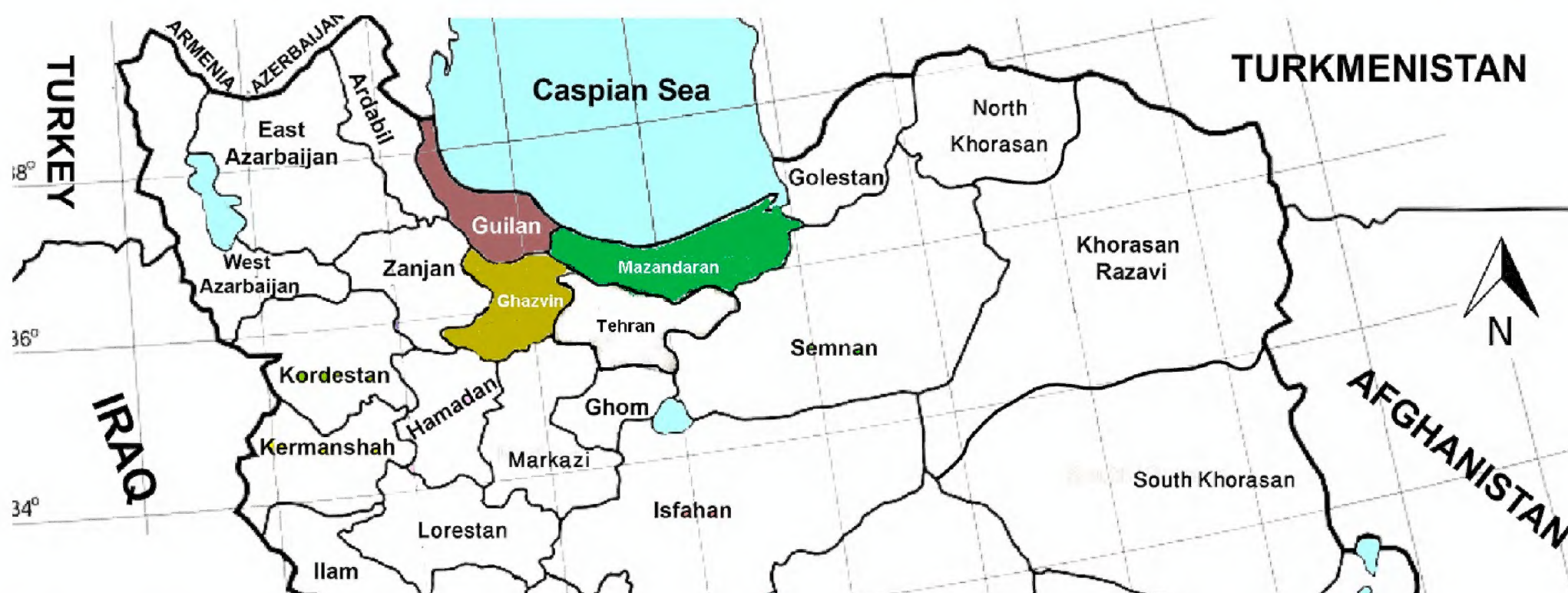
Material for this study was collected from different

habitats of Northern Iran (Figure 1) using malaise traps with 75% ethanol as the killing and preserving agent. Samples were collected from March to November 2010 and 2011. The specimens were extracted from the malaise traps and sorted weekly. Individuals were then treated with 100% ethanol for 5 minutes followed by hexamethyldisilazane (HMDS) for 30 min and finally placed on a glass plate for drying. The dried specimens were then labeled. Morphological terminology follows Van Veen (2004) and Stubbs and Falk (1983). Vouchers are deposited at the insect collection of the Department of Entomology, Tarbiat Modares University, Tehran.

Two species of the genus *Dasysyrphus* were collected and identified from the study area, including one previously reported species *D. albostriatus* (Fallén, 1817) (Dousti and Hayat 2006), and one newly recorded species *D. tricinctus* (Fallén, 1817).

## *Dasysyrphus albostriatus* (Fallén, 1817)

**Synonyms:** *Dasysyrphus confusus* (Egger, 1860), *Scaeva*



**FIGURE 1.** Iranian provinces where *Dasysyrphus* species were collected.



*albostratus* Fallén, 1817, *Syrphus confusus* Egger, 1860

**Material examined:** IRAN: Mazandaran Province, Noor, Jurband (36° 26.259' N, 052 07.225' E), 275 m, (7♂ & 5♀), 13. IV. 2011; IRAN: Mazandaran Province, Noor (36° 34.883' N, 052 02.763' E), -14 m, (1♂), 8. X. 2011; IRAN: Guilan Province, Rudsar, Orkom (36°45'739'' N, 50°18'198'' E), 1201 m, 25-X-2010, 1♀; IRAN: Ghazvin Province, Zereshk road (36° 25.656' N, 050 06.615' E), 1997m, (1♂), 27. VIII. 2011; leg. M. Kheirandish.

**General distribution:** Ireland eastwards through central and southern Europe (Italy, the former Yugoslavia) to Crete (Speight 2006), Turkey (Sarıbiyık 1997); north Africa (Speight 2006); Japan (Pan *et al* 2010); Iran (Gharali and Gilasian 2002).

### *Dasysyrphus tricinctus* (Fallén, 1817) (Figure 2)

Synonyms: *Conosyrphus okunii* Matsumura, 1918, *Lasiophthicus coronatus* Rondani, 1857, *Scaeva tricincta* Fallen, 1817

**Material examined:** IRAN: Mazandaran Province, Jurband (36° 26.259' N, 052 07.225' E), 275 m, (1♂), 13. IV. 2011; leg. A. Nadimi (Figure 1).

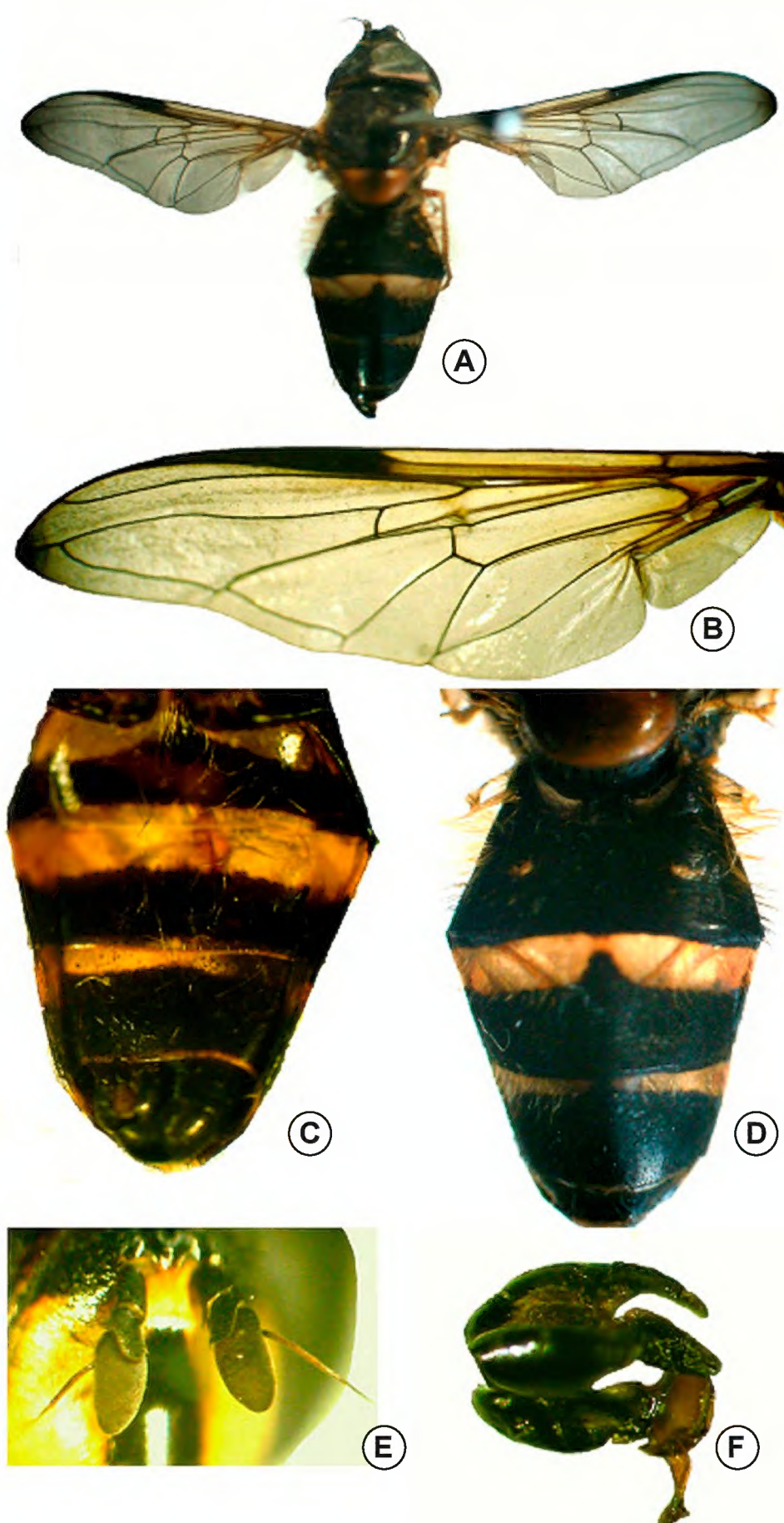
**General distribution:** Britain, Denmark, Finland, France, Germany, Ireland, Japan, Luxembourg, Mongolia, Netherlands, Norway, Spain, Sweden (Ball and Morris 2000), Turkey (Sarıbiyık 2008). New record from Iran.

**Diagnosis:** Head: Frons black; face with black median longitudinal strip that reaches the base of the antenna; mouth edge black; antennae short and black (Figure 2E). Thorax: Scutum shiny black, scutellum yellow with long yellow hairs (Figure 2D); wing with dark stigma (Figure 2B); legs mostly yellow, the basal half of femora black. Abdomen: Tergite II with two yellow small spots, tergite III black with two yellow wide bands, tergite IV black with two yellow bands narrower than those of third tergite, tergite V black (Figure 2D); sternits black, 1<sup>st</sup> sternit with two yellow spots, sternite II two yellow bars and a yellow band, sternite III with two yellow small spots and with a yellow band narrower than those of 2<sup>nd</sup> sternite, sternits IV +V black (Figure 2C).

**Male genitalia:** Surstylus moderately long, uniformly tapering, directed posteroventrad, not distinctly flattened posteriorly; aedeagal base tremendously expanded dorsally (Figure 2F).

On the basis of characteristics of the male genitalia, Vockeroth (1969) distinguished four species groups in the genus *Dasysyrphus*: *albostratus* species group, the *pinastri* species group, the *tricinctus* species group and the *venustus* species group. Two groups have representatives in Iran. *Dasysyrphus albostratus* and *D. eggeri* (Schiner 1862) belong to *albostratus* species group and *D. tricinctus* belong to *tricinctus* species group.

*Dasysyrphus tricinctus* is reported from the entire Balkan Peninsula and occurs mainly in forests. It has only been collected at higher elevations in Macedonia (Krpac *et al.* 2009). Rotheray (1994) reports that larvae are frequent predators of aphids on *Acer pseudoplatanus*. Adults are usually found in or near woodlands, along edges and track-sides, where they visit a wide range of flowers (Ball and Morris 2000).



**FIGURE 2.** *Dasysyrphus tricinctus*, male; A) Adult; B) Ventral view of abdomen; C) Dorsal view of Abdomen; D) Antenna; E) Wing venation; F) Genitalia.

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### LITERATURE CITED

- Ball, S.G. and R.K.A. Morris. 2000. *Provisional atlas of British hoverflies*. Huntingdon: Centre for Ecology and Hydrology. 167p.
- Dusti, A.F. and R. Hayat. 2006. A Catalogue of the Syrphidae (Insecta: Diptera) of Iran. *Journal of the Entomological Research Society* 8(3): 5-38.
- Gharali, B. and E. Gilasian. 2002. New record of *Dasysyrphus eggeri* (Shiner, 1862) (Dip.: Syrphidae) from Iran. *Journal of Entomological Society of Iran* 22(1): 79-80.
- Huo, K.K., H.J. Zhang and Z.M. Zheng. 2005. Two new species of *Dasysyrphus* (Diptera, Syrphidae) from China, with a key to species from China. *Acta Zootaxonomica Sinica* 30(4): 847- 851.
- Krpac, V.T., A.Vujic, S. Smiljka, S. Radenkovic and S. Lazarevska. 2009. Revision of the Genus *Dasysyrphus* Enderlein, 1938 (Diptera: Syrphidae) in the fauna of Macedonia. *Kragujevac Journal of Science* 31: 103-108.



- Pan, Z., B. Wang and K. Huo. 2010. A new species of genus *Dasysyrphus* Enderlein (Diptera, Syrphidae) from China. *Journal of Northeast Forestry University* 38(11): 133-134.
- Peck, L.V. 1988. Family Syrphidae. In A. Soos and J. Papp (ed.). *Catalogue of Palearctic Diptera. Syrphidae – Conopidae*. Amsterdam: Elsevier. 363 p.
- Reemer, M. 2002. Lena's wimperzweefvlieg *Dasysyrphus Lenensis* in Nederland (Diptera: Syrphidae). *Nederlandse Faunistische Mededelingen* 17: 13-18.
- Rotheray, G. E. 1993. Color guide to hoverfly larvae. *Dipterist Digest* 9:1-156.
- Sarıbıyık, S. and A. Hasbenli. 1997. New Records for fauna of Turkish Syrphidae, (Diptera). *Turkish Journal of Entomology* 21(3): 225-232.
- Sarıbıyık, S. 2008. *Dasysyrphus tricinctus* (Fallen, 1817) Turu İle İlgili Bazı Ekolojik Notlar (Diptera: Syrphidae). *Kastamonu Eğitim Dergisi* 16(2) 577-580.
- Speight, M. C. D. 2006. Species accounts of European Syrphidae (Diptera); vol. 44, 235 pp. In M.C.D. Speight, E. Castella, J.P. Sarthou and C. Monteil (ed.): *Syrph the Net, the database of European Syrphidae*. Dublin: Syrph the Net publications.
- Thompson, F.C. 2006. Biosystematic Database of World Diptera. Version 7.5. Electronic Database accessible at <http://www.diptera.org/biosys.htm>. Captured on 20 February 2012.
- Thompson, F.C. and G.E. Rotheray. 1998. Family Syrphidae; p. 81-139 In Papp, L. and B.Darvas, (ed.). Contributions to a manual of Palearctic Diptera (with special reference to flies of economic importance. Vol 3. Budapest: Science Herald.
- Van Veen, M.P. 2004. *Hover flies of Northwest Europe: identification keys to the Syrphidae*. Utrecht : KNNV Publishing. 254p.
- Vockeroth, J.R. 1969. A revision of the genera of the Syrphini (Diptera: Syrphidae). *Memoirs of the Entomological Society of Canada* 62: 1-176.

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